

ABSTRACT

The invention relates to a compositions useful in the field of agricultural chemistry and methods for making and using the compositions. The compositions include (i) a permeabilizing agent, and (ii) a active component, for example, a pesticide or plant growth regulator, and can include additional components as well, for example, flow agents. The permeabilizing agent, or a mixture of permeabilizing agents, acts as an adjuvant to the active component or chemicals to improve the degree of efficacy of the active component or speed of action of the active component. The permeabilizing agents are typically one or more chelating agents, cationic materials, anionic materials, and zwitterionic materials, and include polyphosphate salts. Examples of cationic materials include polyamines such as ethylenediamine and quaternary ammonium salts. The active components can be pesticides, herbicides, insecticides, fungicides, virucides, bacteriocides, and acaricides. Examples of suitable active components include plant growth regulators, defoliators, dessicants, transfection agents, wood treatments (CCA or other chemicals that are effective against termites), traps, disinfectants, marine paints and the like. The compositions can be prepared by mixing the components in a suitable manner, and the compositions can be used by applying the compositions to a plant in need of treatment thereof in an amount effective for the desired use, employing conventional application techniques. In one embodiment, the active components are defoliants, and the composition is used for plant defoliation, for example, with respect to cotton plants.